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PHILOSOPHICAL TRANSACTIONS.

June 21. 1669.

The Contents.

The Generation of an Hyperbolical Cyliandroid demonstrated, and the Application thereof for Grinding Hyperbolical Glasses hinted at. Experiments lately made concerning the Motion of the Sap in Trees. An Extract of a Letter lately written from Vienna, about Damps in the Mines of Hungary, and their Effects. A Chronological Account of the severall Eruptions of Mount Aetna. A Relation concerning a Woman, not long since open'd at Paris, having a double Matrix. An Account of 4 Books I. THOMÆ HOBBS *Quadratura Circuli, Cubatio Sphaerae, Duplicatio Cubi, Consultata à IOHANNE WALLIS &c. II. HISTORIA GERAL DE ETHIOPIA A ALTA; Pelo Padre BALTHASAR TELLES &c. III. AN HISTORICAL ESSAY, Endeavouring to make it Probable, that the LANGUAGE of CHINA is the PRIMITIVE Language; by IOHN WEBB Esquire. IV. AN EXAMEN of the way of TEACHING THE LATIN TONGUE by Use alone.*

Generatio

Corporis Cyliandroidis Hyperbolici, elaborandis Lentibus Hyperbolicis accommodati, Auth. Christophoro Wren L L D. et Regionum Aedificiorum Praefecto, nec non Soc. Regiae Sodali.

Sint (in Fig. I.) Hyperbola opposita DB , EC , quarum Axis transversus est BC , Centrum A , et una ex Asymptotus GP ; item per Centrum sit OM ducta ad angulos rectos ipsi BC .
Tunc Quare

Quare si circumducantur Hyperbola circa Axin OM, manifestum est, ex ea revolutione generari corpus Cylindroides Hyperbolicum cujus Bases sectionesque Basi parallelae sunt Circuli. Dico insuper, si idem corpus secetur per Asymptoton GP, erit sectio Parallelogrammum.

Secetur per Axin transversum sectione circulari BNC; item per O et M in Circulos aequales & aequaliter a Centro distantes; item per Axin in figuram Geometricam cujus semissis est BDEC, in cujus plano erit Asymptotes GP, per quam ad rectos angulos planum BDE secetur in plano FHP, jungantur denique HO.

Quoniam Triangulum OGH est Rectangulum, Ergo Quadratum OH sive OD. minus Quadrato OG. est aequale Quadrato GH; et quoniam DO parallela est ipsi BA, et Asymptoton secatur in G, erit (ex proprietatibus Hyperbolae, quae in Conicis demonstrantur) Quadratum OG una cum Quadrato AB aequale Quadrato OD, h. e. Quadratum OD minus Quadrato OG aequale Quadrato AB sive Quadrato AN. Ergo Quadratum GH aequale est Quadrato AN. Quare GH et AN aequantur et sunt ad angulos rectos ipsi GA; idemque demonstratur de omnibus aliis sectionibus Basi parallelis. Quare Cylindroides Hyperbolica recte secatur per Asymptoton in Parallelogrammum. q. e. d.

Corollarium

Hinc patet, in superficie Cylindroidis, quamvis e duplici flexura constet, rectas nihilominus innumeras duci posse: Patet etiam, aliam esse hujus Corporis generationem, nimir. ex revolutione Parallelogrammi circa Axin manente angulo ad Axin aequali GAO, vel denique manente Linea Generatrice HR immobili, et massam volubilem formante aut secante. Et si acies Dolabri acutissima et rectissima ita disponatur ad Axin, sicut se habet Linea Generatrix, rotante interim Mampure, manifestum est, Torno tam accuratas posse elaborari Hyperbolas quam Circulos, cum nihil aliud requiratur ad formandam Cylindroidem quam ad Cylindrum, nisi quod in Cylindris acies dolabri est Axi parallela, hic vero inclinata. Itaque notandum est, pro Inclinatione Anguli GAO. variari speciem Hyperbolae; adeoque facilius accommodatur ad datam Hyperbolam quam ut demonstratione opus habeat: At si manente angulo Generatrix magis ad Centrum accedat, exurgit inde minor Hyperbola, sed prae se prorsus similis.

Ex hoc Principio fabricari jam curavit Ingeniosissimus Author Machinam, simplicitate sua perquam commendabilem, cujus beneficio lentes elaborentur Hyperbolicae. Illius descriptionem una cum Leone brevi nos etiam edituros speramus

Fig. II.

